PS 1-081

DETECTING HUMAN SERUM ALBUMIN USING SCREEN-PRINTED CARBON ELECTRODE BY CYCLIC VOLTAMMETRY

Shin-Yu Lai [a], Jen-Tsai Liu [b], Ching-Jung Chen [c], Jang-Zern Tsai [a]. *[a]Department of Electrical Engineering, National Central University, Jhongli, Taiwan; [b]College of Materials Sciences and Opto-electronics, University of Chinese Academy of Sciences, Beijing, China; [c]School of Electronic and Communication Engineering, University of Chinese Academy of Sciences, Beijing, China*

Purpose: Electrochemical analysis is a powerful tool for analyzing interfacial reactions as well as composition of analytes. In this study, we made a low-cost, portable, and easy-to-use instrument consists of hardware and software for electrochemical analysis. The cost of our design is 1/1000 fold to compare with commercial systems, and the weight of this device is light for 120 grams. Finally, this study used this portable device to detect human serum albumin (HSA) by cyclic voltammetry analysis employing screen-printed carbon electrode (SPCE).
Methods: In this study, we made a portable device which consists of hardware and software in it. The hardware part consists of PCB and electrical elements on the PCB. We used ATXmega32A4 as the microcontroller, and TLC2264ID as OP amplifier. The software part was written by C language and compiled with AVR studio. We used homemade instruments to detect HSA with CV with SPCE. All the solutions were prepared at room temperature (25 ± 2°C) and DI water. The concentration of HSA is 0—450 mg/L.
Results: Figure shows the CV response of the detection of HSA. With adsorption of HSA on the electrode, we can observe that the peak current decreases when the concentration of HSA increases. This is due to the adsorption of HSA hinders transfer of electrons between electrode and the solution.

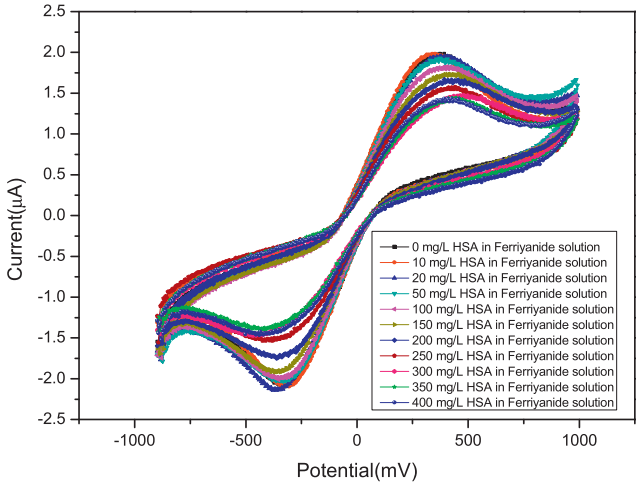

Figure CV response for the detection of HSA from 0 mg/L to 450 mg/L in 0.1 M ferricyanide solution containing 10 mM PBS.
Conclusions: The portable device could detect the HSA successfully, and show the homemade portable device has great potential to apply in Point of Care system for routine checking.

PS 1-082

SURVEILLANCE AND CONTROL OF *CLOSTRIDIUM DIFFICILE* OUTBREAK IN AN ACUTE CARE HOSPITAL IN A DEVELOPING COUNTRY

Paola Andrea V. Molina, Maria Fe R. Tayzon, Victoria I. Ching, Khenna D. A. Jimenez, Liberty Ligaya F. Lina. *The Medical City*

Purpose: This descriptive study aims to increase the awareness on *Clostridium difficile* infections as an important cause of morbidity in hospitalized patients. Educate clinicians that source identification, institution of infection control policies together with an effective antimicrobial stewardship program can control an outbreak of *Clostridium difficile* infections in an acute care hospital even in a developing country such as the Philippines.
Methods: Descriptive retrospective study based on active surveillance for twelve - months (January — December 2013) was conducted. All patients who met the criteria for the diagnosis of *Clostridium difficile* infection were included in the study. *Clostridium difficile* Toxin A and B II for fecal specimen is used to detect *Clostridium difficile* infection. Environmental surveillance of potential sources was also conducted.
Results: Ninety - eight cases were identified to have infection and/or colonization with *Clostridium difficile*. Majority of the patients who developed *Clostridium difficile* infection was in critical condition and had received multiple antibiotics for a prolonged period of time. Effective infection control strategies implemented to control the outbreak included: early identification of *Clostridium difficile* infection cases through empowerment of nurses and resident doctors to screen patients and order institution of isolation precaution policies; cohort of patients with *Clostridium difficile* infection and strict monitoring of environmental cleaning and disinfection. Implementation of the antimicrobial stewardship program with introduction of "reminder stickers" to limit the duration of antibiotics for specific infections based on local and international guidelines is critical to the success of *Clostridium difficile* outbreak control.
Conclusion: Infection control strategies implemented was successful in reducing clostridium difficile infection in the hospital.

PS 1-083

SURGICAL SITE INFECTIONS AFTER ORTHOPEDICS OPERATION: OUTBREAK INVESTIGATION AND SURVEILLANCE

Chao-jen Lin [a,b,c], Hui-chu Lin [c], Ming-Tang Song [b], Chun-Eng Liu [a], Shih-Te Tu [b]. *[a]Department of Internal Medicine, Changhua Christian Hospital, Changhua, Taiwan; [b]Department of Internal Medicine,; [3]Infection control division, Lukang Christian Hospital, Changhua, Taiwan*

Purpose: Surgical site infection (SSIs) is one of the major complications after the operation, the infected wounds may induce amputation, got higher mortality and increased medical expenses. In June 2012, surgeons have announced abnormal increasing SSIs and recognized by infectious disease physician, the risk factors of increasing infectious rate were unknown. The goal of this study was to determine the causes of increased post-arthroscopy SSIs and to define risk factors of infection.
Methods: Demographic, clinical, and microbiological data were collected on post-arthrocopy SSIs from January, 2012 through December, 2013. Risk factors for SSI were identified by case-control analysis and presented as odds ratios (OR) and 95% confidence intervals (CI).
Results: SSIs notification process was set up and reward system to encourage employees to take the initiative to inform. Several directions were analyzed including the behavior of staff, environment and equipment. Higher humidity (70 to 75%) was noted in surgical instrument storage room, positive bacterial culture results in equipment package and air conditioning vent. We added a new dehumidifier to reduce humidity outside, whoever, the surgical packages were not entirely dry after autoclave sterilized, so the surgical instrument packages were shift sterilized to the central supplying room.
Conclusions: If surgeons didn't announced or sent bacterial cultures of suspecting surgical wound infection, that the infection control division was difficult to find infectious cases and investigated potential outbreak. The sporadic cases were improved within six months after the outbreak, ongoing surveillance and long-term follow-up are helpful in infection control interventions.

PS 1-084

MOLECULAR TYPING OF HEALTHCARE-ASSOCIATED INFECTION STRAINS WITH RANDOM AMPLIFIED POLYMORPHIC DNA METHOD BY TWO TYPES OF CAPILLARY ELECTROPHORESIS ANALYSIS

Cherng-Lih Perng [a,b], Yi-Hui Wang [a], Xin-Yi Zhong [a], Ming-Zhi Jian [a], Xiao-Wei Li [a], Tzu-Feng Huang [c], Ming-Chin Chan [c], Tzong-Shi Chiueh [b]. *[a]Division of Clinical Pathology, Department of Pathology, Tri-Service General Hospital, Taipei, Taiwan, ROC; [b]Graduate Institute of Pathology, National Defence Medical Center, Taipei, Taiwan, ROC; [c]Infection Control Office, Tri-Service General Hospital, Taipei, Taiwan*

Purpose: Healthcare-associated infections (HAI) are that became clinically evident after 48 hours of hospitalization and do not originate from patient's original admitting diagnosis. These infections cause significant morbidity and mortality and have a considerable impact on healthcare costs. The differentiation of clonal similarity between potential outbreak strains is very important. The Random Amplified Polymorphic DNA (RAPD) is an inexpensive yet powerful typing method for many bacterial species.